NEW RHAETIC AND LIASSIC BEETLES

by B. G. GARDINER

ABSTRACT. An isolated coleopteran elytron from the Lower Lias of Lyme Regis is described and named *Elaterina liassica* gen. et sp. nov. Six fragments of coleoptera including five pieces of elytra and one metasternum were collected from a fissure of Rhaetic age in the Carboniferous Limestone of South Wales. Their relationship with the present-day Cupedidae is considered and the fragments have been named *Metacupes harrisi* gen. et sp. nov.

ALL except one of the present insects were discovered as a result of a programme of field work which has been carried out in South Wales for the past eight years by Dr. K. A. Kermack of University College, London, and his co-workers (Kermack and Mussett 1958). Professor T. Harris of Reading, while investigating the plants (Harris 1957) from a fissure in Cnap Twt quarry near Bridgend, found a number of insect fragments which he kindly put at my disposal for description. At first sight the colour and nature of much of the matrix in many of the fissures in the Bridgend area suggest the age to be Keuper (Kermack, Kermack, and Mussett 1956), although Harris (1957) from the contained flora suggests that it is Upper Rhaetic or Basal Lias in age. This apparent discrepancy is explained by a recurrence in the Rhaetic of conditions similar to those under which the Keuper Marls were deposited. In several places west of Bridgend the Rhaetic shows an interbedding of some thin bands of red and green marls indistinguishable from the Keuper Marl in the upper part of the *Pteria* (*Avicula*) *contorta* zone (Strahan and Cantrill 1904).

The last of these insects was discovered while preparing in acetic acid a specimen of *Osteorachis macrocephalus* Egerton from the Lower Lias of Lyme Regis. The elytron of a beetle was found within the orbit of this fish.

SYSTEMATIC ACCOUNT

Family ELATERIDAE Eschsholtz 1829

Genus ELATERINA gen. nov.

Type species. Elaterina liassica gen. et sp. nov., Lower Lias, Lyme Regis.

Diagnosis. An elaterid with its elytron bluntly rounded posteriorly and with a distinct groove running round both lateral edges.

Elaterina liassica gen. et sp. nov.

Text-fig. 1

Holotype. British Museum (Nat. Hist.) IN 50351, Lower Lias, Lyme Regis.

Diagnosis. The elytron measures 12·5 mm. in length and 5 mm. at its widest point. Posteriorly slender striations run about one-quarter of the length of the elytron. The ornamentation consists of minute raised tubercles which cover the entire dorsal surface.

Remarks. From a comparison with figures published in Bode (1953) and with living

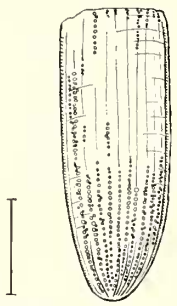
[Palaeontology, Vol. 4, Part 1, 1961, pp. 87–89.]

species, the elytron is that of a beetle very similar in structure to the present-day Elateridae (click beetles). Since, however, there is no one genus with which it corresponds more than superficially, I propose to designate it by a new name (*Elaterina liassica*, gen. et sp. nov.).

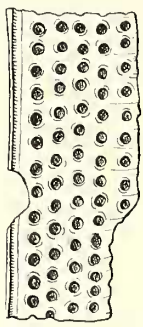
Family CUPEDIDAE Lacordaire 1857

Genus METACUPES gen. nov.

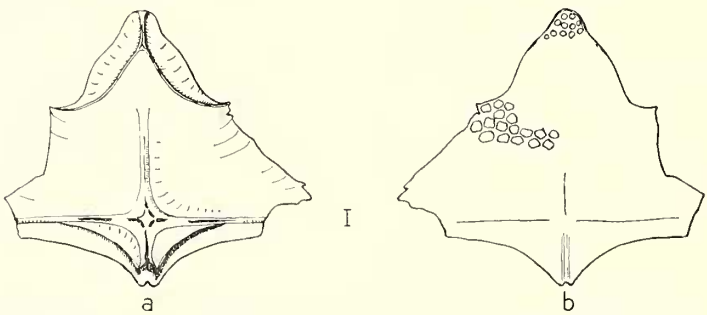
Type species. Metacupes harrisi gen. et sp. nov., Rhaetic, Bridgend.



TEXT-FIG. 1. *Elaterina liassica*, n. gen. et n. sp. B.M. N.H. IN 50351, Lower Lias, Lyme Regis. Scale represents natural size.



TEXT-FIG. 2. *Metacupes harrisi*, n. gen. et n. sp. B.M. N.H. IN 50352, fragment of elytron, Rhaetic, Bridgend.



TEXT-FIG. 3. *Metacupes harrisi*, n. gen. et n. sp. B.M. N.H. IN 50352, Rhaetic, Bridgend. Metasternum in *a*, dorsal view; *b*, ventral view.

Diagnosis. Elytron with a deeply punctate, regularly arranged ornamentation. Metasternum triangular and with characteristic strengthening bars on its inner surface.

Remarks. The insect remains collected from the fissure near Bridgend numbered six fragments. Of these five were pieces of elytra, and the sixth a metasternum of a beetle.

Metacupes harrisi gen. et sp. nov.

Text-figs. 2, 3

Holotype. British Museum (Nat. Hist.) IN 50352, Rhaetic, Cnap Twt quarry, near Bridgend.

Diagnosis. The fragments of elytra are all similar. The largest piece shows a distinct

groove running down one of its lateral edges (text-fig. 2) and has a deeply punctate, regularly arranged, ornamentation (areolate).

The metasternum measures 2·2 mm. in length and its general shape is given in text-fig. 3. It is roughly triangular and strengthened on its inner surface by two bars, which together form a cruciform structure. The locations of these strengthening bars are apparent on the external surface. The ornamentation consists of a tuberculate sculpturing.

Remarks. At first sight these few remains (B.M. N.H. IN 50352 and IN 50353) appear too fragmentary to identify with certainty, however the metasternum is probably a more diagnostic character than the elytron, and the only living family I have observed possessing a metasternum of this shape is the Cupedidae.

Rohdendorf (1958) has recently figured many new and interesting forms of fossil Coleoptera from the Permian of Siberia. One of these *Protocupes martynovi* Rhod. has an elytron with a very similar ornamentation to that of *Metacupes harrisi* gen. et sp. nov. With the additional evidence obtained from the metasternum there is every justification in putting the above fragments together with his in the same family, the Cupedidae.

The fragments seem to be near the living genus *Omma* Newman and very similar to a fossil genus *Mesothoris* described by Tillyard (1916).

Discussion. Since these Permian and Rhaetic members of the Cupedidae looked so much like living species of today, there must be in the younger rocks intermediates differing little from the Rhaetic forms on one hand, and the living species on the other. On examination of the appropriate collections in the British Museum (Nat. Hist.) this has proved to be the case, and Dr. R. Crowson of Glasgow University will shortly be describing many of these forms in a review of the Cupedidae.

REFERENCES

BODE, A. 1953. Die Insekten fauna des Ostniedersächsischen overon Lias. *Palaeontographica*, **103**A, (1–4), 1–375.

HARRIS, T. M. 1957. A Liasso-Rhaetic flora in South Wales. *Proc. Roy. Soc. B*, **147**, 289–308.

KERMACK, D. M., KERMACK, K. A., and MUSSETT, F. 1956. New Mesozoic mammals from South Wales. *Proc. Geol. Soc. Lond.*, no. **1533**, 31.

KERMACK, K. A. and MUSSETT, F. 1958. The jaw articulation of the Docodonta and the classification of Mesozoic mammals. *Proc. Roy. Soc. B*, **148**, 204–15.

ROHDENDORF, B. B. 1958. Les Insectes Paléozoiques du sud de la Sibérie. *Proc. 10th Internat. Congr. Ent.* **1**, 853–9.

STRAHAN, A. and CANTRILL, T. C. 1904. Geology of the South Wales coalfield. Part IV, The country around Bridgend. *Mem. Geol. Survey*.

TILLYARD, R. J. 1916. Mesozoic and Tertiary insects of Queensland and New South Wales. *Qd. Geological Survey*, **253**, 11–60.

B. G. GARDINER
Department of Biology,
Queen Elizabeth College,
London

Manuscript received 25 May 1960